ACEWELL® ATV/Motorcycle Computer

ACE-4XXX-XX User Manual

Thanks for purchasing the ATV/Motorcycle computer; this manual is specifically designed for ACE-4XXX-XX series.
Different series have different needle tachometer scales, each series has different models, each model has different LED indicators.
You may find that the photo has a set of LED indicators different from your computer, the photo is for reference only.

Different series with different needle tachometer scales are as bellows:

ACE-43XX-XX : 6,000 rpm
ACE-44XX-XX : 9,000 rpm
ACE-45XX-XX : 12,000 rpm
ACE-46XX-XX : 15,000 rpm

English 英文

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PANEL DESCRIPTIONS

1. Tachometer Scale
2. Needle Tachometer
3. 1st row: Current & Max.Speedometer
4. 2nd row: Other functions
5. Temperature 1 &2
6. RESET Button
7. MODE Button
8. RPM Warning Indicator
9. 12/24 Hour Clock
10. Bar Fuel gauge
11. LED indicators

Different models have different LED indicators, each indicator symbol means as below:

Left direction indicator/Green		Engine oil / Red
Main-beam headlamp/Blue	N	Neutral Gear /Green
Right direction indicator/Green	R	Reverse Gear /Red
Hazard Warning/ Red	D	Drive Gear /Green
Parking/Green		Engine coolant temperature/ Red
Direction indicator/Green		Rear fog lamp/Amber
Flash Trailer/Green		Engine in out of use/ Red

FEATURES

- Aluminum CNC main unit built-in 4-6 LED indicators for different purpose applications
- Displays needle tachometer, speedometer, clock, Coolant or air temperature and fuel gauge plus additional function simultaneously.
- Digital tachometer is up to 19,900rpm regardless of the needle tachometer scale
- Allows end user to adjust his/her prefer backlight color.
- Includes 50 lap timers and a wiring remote control switch.
- Allows end user to adjust odometer when the odometer is less than 30km / 18.6 miles
- Fuel gauge includes +/-100, 250 and 510 Ohm options for fuel meter input resistance, as well as “fuel gauge off” mode.
- Includes bracket, RPM sensing wire, speed sensor, thermo sensor, fitting kits, wiring harness and wiring remote control switch.

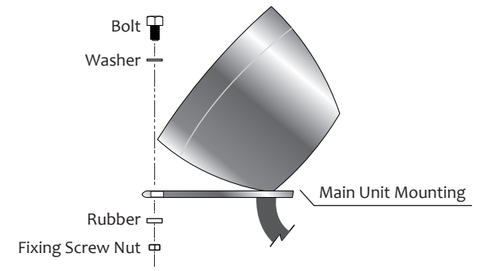
SPECIFICATIONS

Function	Simbolo	Specifications
Needle Tachometer		ACE-43XX-XX 6,000rpm ACE-45XX-XX 12,000rpm ACE-44XX-XX 9,000rpm ACE-46XX-XX 15,000rpm
Digital Tachometer	rpm	100-19,900rpm
Speedometer	Km/h / MPH	2.4-399.9 Km/h (248.5 MPH)
Maximum speed	MAX	2.4-399.9 Km/h (248.5 MPH)
Average speed	AVG	2.4-399.9 Km/h (248.5 MPH)
Coolant temperature	TEMP 1	+50°C-180°C / 122°C-356°C <50°C display -L-, >180°C display -H
Air temperature	TEMP 2	-20°C-+60°C / -4°F-140°F
Max. Temperature	MAX TEMP 1	+50°C-180°C / 122°F-356°F <50°C display -L-, >180 C°display -H-
Trip meter 1&2	TRIP 1&2	0.0-999.9 KM /624.9Miles
Odometer	ODO	0.0 - 999999 KM, 0.0-624999 Miles
12/24 Hour Clock		AM/PM 0:00`-11H59`/23H59`
Riding timer	RT	0-99H59`59``
Total Riding Time	TT	0-999999H
Voltage Gauge	V	8.0-25.0 Volt
Bar-Fuel Gauge*		100Ω, 250Ω, 500Ω options or 1-7 Bar-graphic
LAP	Lap	50 laps

Power Input	DC 12V
Tachometer Sensor	CDI or Ignition Coil Signal
Speed Sensor	Reed or 2 wires hall Sensor
Temperature Sensor	Thermo Sensor
Speed input divider setup	1-199 Pulses
Maximum frequency of divider	7K Hz
Wheel circumference setting	1mm-3999mm
Software Divider Max. Speed	
Dimensions	∅80mm x 68 mm

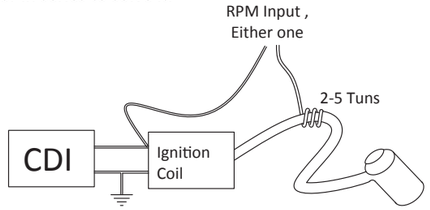
INSTALLATION & PARTS

Main Unit Installation:



RPM sensor mounting:

1. Signal intensity from ignition coil is dependent on vehicle type.
2. Coil 2-5 turns around spark plug lead, with more turns creating steadily stronger signal, fewer turns creating weaker signal.
3. The RPM circuit is designed for most bikes, however some bikes’ signal is too strong if the RPM looks like much more than actual RPM and unstable, please serial connect the included 1M Ohm resistor in series to solve it.

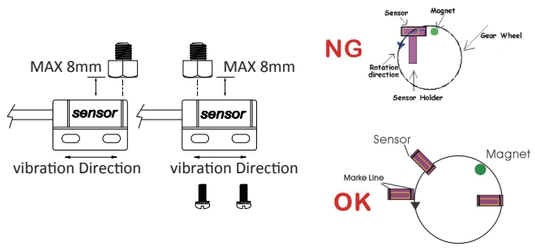


Speed Sensor:

ACEWELL has several speed sensors; the unit may include one of them. If the model is intended to be connected to a gearbox electronic speed output to obtain the speed reading, no speed sensor will be included.

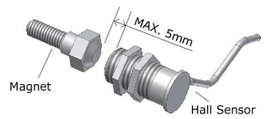
Reed Speed Sensor and Magnet:

1. This sensor is universal sensor for motorcycle, find a rotating part to install magnet (for example disk, sprocket or driveshaft) and a location to install the sensor where it can be aligned to the magnet.
2. Align the center of the magnet to either of the sensor marking lines or the side of the sensor. The magnet must not travel down the body of the sensor
3. Installing the sensor parallel to the vibration direction creates optional anti-vibration effect.
4. Make sure the gap between the magnet and the sensor is within 8mm.



Hall Effective Speed Sensor and Magnet:

1. This is universal sensor for ATV rear wheel installation or motorcycle front wheel installation as if you purchase a relative speed sensor holder.
2. Find a part can rotate to install magnet and a location can install sensor and the sensor can be aligned to the magnet.
3. Align the center of the magnet to center of side face of the sensor.
4. Make sure the gap between the magnet and the sensor is within 5mm.



Specific Hall sensors:

The sensor such as Honda CRF, XR….etc. can replace original sensor cable and fix it at the original position.

Thermo Sensor and Sensor Tube:

1. The unit includes a water temperature sensor; you have to purchase a suitable water pipe temperature sensor tube to install the sensor easily.
2. Cut the water pipe, insert the temperature tube into the pipe and secure it by attached pipe clamps.
3. Screw the sensor into the tube.

Wire Remote Control Switch Installation:

1. Install the switch arm on handlebar.
2. Install the switch box to one of 3 fixing holes and adjust switch box to a suitable angle.
3. Plug the switch box connector into the main unit matching connector.

FUNCTIONS

RPM: Digital Tachometer

1. It displays digital tachometer up to 19,900RPM.
2. Tachometer signal can pick up from either CDI or Ignition Coil Signal.

Shift Warning RPM

1. The function enables you to set up a shift warning RPM.
2. Shift warning LED indicator flashes when RPM reaches setting value, and stops flashing after you shift gear.

MAX RPM: Maximum Tachometer

Displays highest tachometer achieved since last Reset operation.

Km/H or MPH: Speedometer

1. Displays speed meter up to 399.9 Km/H or 248.5 MPH.
2. The maximum frequency of software divider is 7K Hz.
3. The speed can be less than 399.9 KM/H in case the setup is using software divider for speedometer, for example the maximum speed is 250KM/H in case setup of software at 105P and the wheel circumference at 1277mm.

MAX: Maximum Speed Meter

Displays highest speed achieved since last Reset operation.

AVG: Average Speed Meter

It calculates average speed from last RESET. The AVG is calculated from TRIP be divided by RT.

TRIP 1&2: Trip Meter 1&2

TRIP function accumulates trip distance since last RESET as long as bike/vehicle is moving.

ODO: Odometer

1. ODO accumulates total distance traveled.
2. ODO data is adjustable when it is less than 30km (18.6 Miles), after that it stored in memory and cannot be reset.

RT: Riding Timer

1. Calculates total running time since last RESET.
2. Counter automatically begins with movement.

TT: Total Riding Timer

1. Calculates total riding time from the beginning of the bike.
2. TT data is stored in memory, and couldn’t be reset.

: 12/24 hour Clock

It displays 12 or 24 hour current time.

TEMP 1: Engine Temperature Meter

1. It displays -L-°C or -L°Fwhen temperature is lower than 50°C or 122°F, and displays -H-°C or –H-°F when temperature is over 180°C or 356°F.
2. The LCD screen flashes the digits of temperature when the thermo sensor detects temperature higher than the maximum preset temperature.

TEMP 2: Air Temperature

It displays air temperature from -20°C (-4°F) to+60°C (+140°F).

MAX TEMP 1: Maximum Temperature

Displays highest temperature achieved since last Reset operation.

Volt: Digital Voltage Gauge

It checks bike’s battery and charging systems health.

: Fuel Gauge

1. Has 7 bars to indicate how much fuel remains.
2. Built-in 100, 250, 510Ohm, oFF, -100, -250 and -510 Ohm fuel sender resistance, the fuel bars will disappear when you select “oFF” mode.
3. The full bars are low resistance and empty bar is high resistance for 100, 250 and 510ohm; -100, -250 and -510 ohm are the inverse.
4. Last bar flashes to indicate low fuel level automatically.

Fuel Bar & Resistor Value

Bars	100r	250r	510r	-100	-250	-510
7	0-10	0-25	0-50	100-90	250-230	510-460
6	11-20	26-50	51-100	89-75	229-200	459-380
5	21-35	51-85	101-180	74-60	199-150	379-300
4	36-45	86-110	181-230	59-45	149-110	299-230
3	46-60	111-150	231-300	44-35	109-85	229-180
2	61-75	151-200	301-380	34-20	84-50	179-100
1	76-90	201-230	381-460	19-10	49-25	99-50
0-Flash	91-100	231-250	461-510	9-0	24-0	49-0

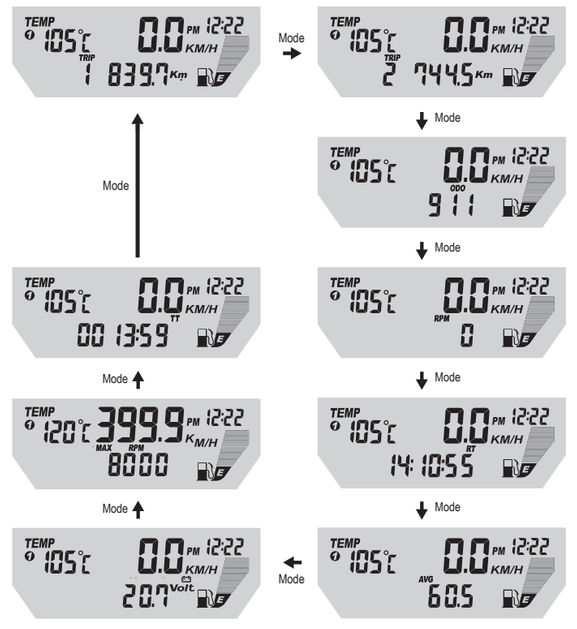
LAP: Lap Timer

1. It can keep up to 50 sets of lap timer and average speed of each circle.
2. The function must be operated by an additional wiring remote control switch or an accessory IR receiver/transmitter or a magnetic field sensor.

BUTTON OPERATIONS

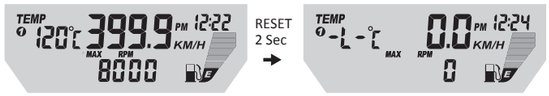
MODE Button

Press the MODE button to move between all functions in loop sequence from one function screen to another.



RESET Button

1. Press MODE button to the desired screen then press RESET button for 2 seconds to reset TRIP 2, MAX SPD/MAX TEMP 1/ MAX RPM data from stored values to zero individually.
2. The data of Trip 1, AVG & RT will all be reset at the same time when one of the 3 data functions is being reset.
3. ODO, clock and TT data cannot be reset.



Shift Warning RPM Operation

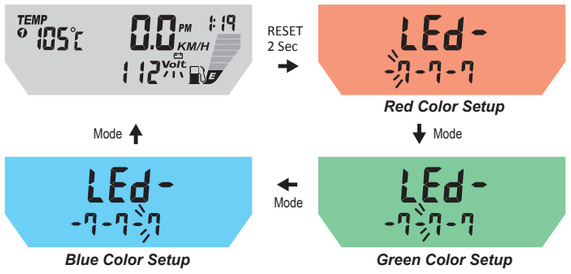
1. Press MODE button to the RPM screen; pull on the throttle until the desired shift warning RPM.
2. Press RESET button to confirm and set up the shift warning RPM.
3. Bar-graphic tachometer and warning LED will flash to warning you shift gear.
4. Press RESET button for 2 seconds at the RPM screen to re-adjust the shift warning RPM

Change display of TEMP 1 & 2:

1. Press and hold MODE button for 2 seconds converts TEMP 1 or 2.
2. The screen will change to TEMP 1 automatically in case engine temperature is higher than the preset warning temperature.

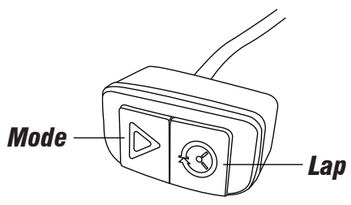
Backlight Color Adjust:

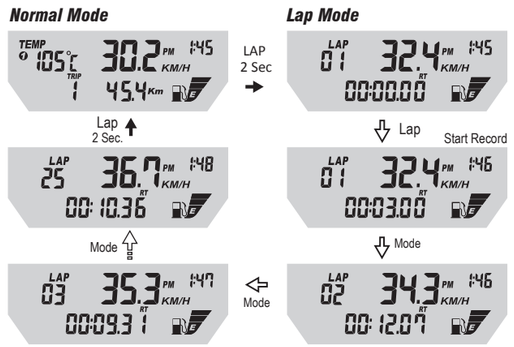
1. Press MODE button to get to the VOLT screen when not moving; push and hold RESET button for 2 seconds to go into backlight color setting mode.
2. It displays “LED and -7-7-7”, the 3 numbers indicate each color of Red, Green or Blue color to be adjustable, each color has 8 levels 0, 1, 2,..7 for setting, “0” means the color is off, “7” means the color is turned on 100%.
3. Each press of the RESET button increments the flashing digit by 1, press MODE button to confirm the flashing digit setting and jump to next digit to be set. Press MODE button for 2 seconds to finish the setting and go to normal mode.



Remote Control Switch for LAP timer:

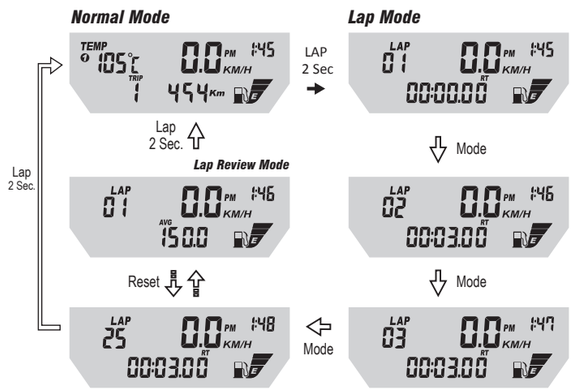
1. The remote control switch has 2 buttons: MODE and LAP. The MODE button has the same function as on the main unit.
2. Press and hold the LAP button for 2 seconds to go into the LAP mode.
3. LAP Record operations:
   In LAP mode, press LAP button to start the LAP recording function, each press of MODE button records a set of data LAP & AVG and displays LAP timer for 3 seconds then changes display to speed mode automatically, press LAP button to convert stop or start LAP record function, press and hold the LAP button for 2 seconds to go out LAP mode and return to normal mode.





LAP review operations:

1. In the LAP mode, press MODE button to review the 1st storage data, it displays number of lap and lap timer.
2. Press the RESET button to switch between lap timer or average speed of the same LAP; each press of the MODE button displays data for the next lap.
3. Press and hold LAP buttons for 2 seconds to go out LAP mode and return to normal mode.



WHEEL CIRCUMFERENCE TABLE

1. The details below have been calculated using following formula:
   Tire Diameter (inches) x 25.4(mm/inches) x 3.1416
   = wheel circumference (in mm).
2. Identify the tire size of your ATV/Motorcycle when you need to change different tire size and key in the corresponding number shown in the following chart.

Tire Size	Circumferen ce number (mm)	Tire Size	Circumferen ce number (mm)	Tire Size	Circumferen ce number (mm)
15 inch	1197	19 inch	1516	23 inch	1835
16 inch	1277	20 inch	1596	24 inch	1915
17 inch	1357	21 inch	1676	25 inch	1995
18 inch	1436	22 inch	1756	26 inch	2075

3. These values are approximate and will differ for different brands of tyre, we would always recommend that you measure the distance travelled per revolution of the wheel in mm and enter this into the computer.
4. The computer calculates the wheel rotating length between 2 passes of the magnet; use this table to find the settings when you are using a reed sensor or an universal hall sensor with magnet to measure your speed.
5. If you are using a cable drive speed sensor then divide the number in the above table by the number of turns of the cable drive for each revolution of the wheel. For example if 1 wheel revolution equals 5 turns of speed cable then the wheel circumference has to be divided 5.
6. You can use more magnets, but the wheel circumference setting must be divided by the number of magnet you installed.
7. The computer has a built-in software divider setting from 1 to 199 for different speed signal application, refer to the divider setup, one means one wheel revolution creates one signal. You have to input the number of signal per wheel revolution to have a correct speed.

Clock, RPM, Wheel, Unit, Divider, Thermometer, fuel meter and ODO SETUP

1. Setup operations include, 12/24hour clock, shift warning RPM, numbers of engine rotation per signal, wheel circumference, signal divider, units, units of temperature, temperature warning, fuel meter input resistance selection and odometer adjustment. These must be set up step by step. The computer will be automatically revert to normal mode if no button is pressed for 75 seconds at any setting screen.
2. Press both MODE & RESET buttons to go into setting mode. In setting mode, each press of the RESET button increments the flashing digit by 1 or converts units. Press MODE button to confirm the digit setting and jump to next digit or next setting screen to be set. Press MODE button for 2 seconds at any setting screen to finish the setting and go to normal mode.
3. It displays "12 or 24H and XX:XX " symbols as well AM/PM in case you select 12H. Operates buttons as descriptions of item 2 to finish clock setting and jump to shift RPM warning setting.
4. It displays the default "RPM r06500", the digit “0” flash. Follow the item 2 of button operation to finish the shift RPM warning setting and jump to engine specification setting.
5. It displays "RPM SPC-X.X", the default value is 1.0; there are 4 options: 1.0, 2.0, 3.0 and 0.5. It means the numbers of engine rotation per signal. For example the value 2.0 means the engine rotate 2 turns to output a signal.
6. Press RESET button to move in loop sequence from one to another value of the 4 values. Press MODE button to confirm the setting and go to wheel circumference setting screen.
7. In "cXXXX" display, "c" means "Circumference", following 4 default digits; flashing digit is digit to be set. Follow the item 2 of button operation to finish the wheel circumference setting and jump to signal divider setting.
8. It displays "P-001" for signals to be divided. Follow item 2 of button operation to finish the setting and jump to unit setting.
9. It displays KM/H or MPH, each press of RESET button converts unit; press MODE button to confirm unit setting and jump to thermometer unit setting.
10. It displays "°C ,°F or oFF", each press of RESET button converts °C, °F or Off, the temperature bars will disappear when you select oFF mode; press MODE button to confirm temperature setting and jump to temperature warning setting.
11. It displays "XXX" and the selected unit. Follow the item 2 of button operation to finish the temperature warning setting and go to fuel sensor resistance setting.
12. It displays “ 100r ” and fuel tank symbol, follow the item 2 to select 100, 250, 510ohm, oFF, -100, -250 or -510Ohm and jump to odometer setting.. The fuel meter bar will disappear if you select oFF mode.
13. It displays “ ODO & 00000X km ”, the “ X ” is from odometer testing in factory, follow item 2 to setting a desired odometer and jump to clock setting or return to Normal Mode. This setting screen will disappear when the odometer is over 30km (18.6Miles) or your setting is over 30km.